

10/789,586

Page 5 of 9

Remarks

Claims 1-11 are pending in the application.

Claims 1, 2 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimmitt et al. (Pub. No.: US 2003/0175037 cited by applicant, hereinafter "Kimmitt") in view of Wang (U.S. Patent No. 7,184,671, hereinafter "Wang").

Claim 3 is rejected under 35 U.S.C. 103 as being unpatentable over Kimmitt in view of Wang and further in view of Sikora (U.S. Patent No. 6,952,534, hereinafter "Sikora").

Claims 9-11 are new.

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly

557602\_1

10/789,586

Page 6 of 9

include the limitations of those claims on which it formerly depended or whether an independent claim has been rewriting to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Rejection Under 35 U.S.C. 103(a)

Claims 1, 2 and 4-8

Claims 1, 2 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimmitt in view of Wang. The rejection is traversed.

Applicants' claim 1 recites:

"An optical return-to-zero transmitter comprising: means for providing a pulsed optical signal; an optical modulator arranged to receive a non-return-to-zero electrical data signal and a bias signal, to modulate said optical signal with said data signal; whereby said optical signal providing means and said modulator provide a return-to-zero optical output signal modulated with said data signal; means for controlling the difference in phase between said pulsed optical signal and said data signal in response to a phase control signal; means for adding a first dither signal to said difference in phase and a second dither signal, having a different frequency than said first dither signal, to said bias signal; means for monitoring the amplitude of variations in the power of the optical output signal corresponding to cross-modulation of said first and second dither signal frequencies; and means responsive to said monitored amplitude for adjusting said phase control signal to maintain phase synchronization between said pulsed optical signal and said data signal." (emphasis added)

According to MPEP §2143, to establish a prima facie case of obviousness under §103, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

557602\_1

10/789,586

Page 7 of 9

The Office Action failed to establish a *prima facie* case of obviousness, because the combination of Kimmitt and Wang fails to teach or suggest all the claim elements. Specifically, neither reference alone or in combination teaches a "means for monitoring the amplitude of variations in the power of the optical output signal corresponding to cross-modulation of said first and second dither signal frequencies"(emphasis added) as recited in Applicant's claim 1.

Kimmitt teaches control of an optical modulator for biasing of data and pulse modulators. A feedback loop having an modulator controller controls the output modulated optical signal. The modulator controller sets the bias signals and the phase control signal using a series of dithers to produce and maintain an optimal optical waveform. (See paragraph 39, lines 1-4). Figure 6 shows the optical modulator. *A dither signal from a dither generator is provided to a coherent detector (demodulator) along with an amplified output signal. The output of the coherent detector is an error signal.* This error signal is provided as an input to a combination of three integrators: phase integrator 100, pulse integrator 98, and data integrator 96 and the output is a control signal. (See paragraph 40, lines 10-15 and paragraph 42, lines 9-10). *Integration of the error signal produces a corresponding correction signal which is added (modulated) with the dither signal.* (See paragraph 44, lines 19-24) (emphasis added).

Since Kimmitt teaches *demodulation* of the dither signal from the modulated optical output signal to create an error signal, then *modulation* with the dither signal to create the modulation and phase control signals it therefore fails to teach cross-modulation of said first and second dither signal frequencies, as recited in at least Applicant's claim 1.

Examiner conceded Kimmitt does not disclose expressly cross-modulation of first and second dither signals having different frequencies. However, Examiner then alleged that Wang discloses this feature. Applicant respectfully disagrees. In fact, Wang teaches away from Applicant's claimed invention. Wang positively states different dither modes and different dither frequencies are utilized in modulation control 340 for each of modulators 310 and 312.

Wang clearly fails to bridge the substantial gap left by Kimmitt. Specifically, Wang fails to disclose the novel concept cross-modulation of said first and second dither

557602\_1

10/789,586

Page 8 of 9

signal frequencies. In fact, Wang specifically teaches away from Applicant's invention since Wang teaches that different dither frequencies are utilized in separate modulators. Thus, Kimmitt and Wang (either singly or in any permissible combination) clearly do not make the Applicants' independent claims 1 and 6 obvious.

As such, independent claim 1 is patentable under 35 U.S.C. 103(a) over Kimmitt in view of Wang. Independent claim 6 recites relevant limitations similar to those recited in independent claim 1 and, accordingly, for at least the same reasons discussed above, independent claim 1 also is patentable under 35 U.S.C. 103(a). The remaining claims depend directly or indirectly from independent claims 1 and 6, while adding additional elements, and inherit the patentability of claims 1 and 6. Therefore, the dependent claims also are patentable under 35 U.S.C. 103(a) over Kimmitt in view of Wang.

Therefore, the rejection should be withdrawn.

### Claim 3

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimmitt in view of Wang and further in view of Sikora. The rejection is traversed.

This ground of rejection applies only to dependent claims, and is predicated on the validity of the rejection under 35 U.S.C. 103 given Kimmitt in view of Wang. Since the rejection under 35 U.S.C. 103 given Kimmitt in view of Wang has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Sikora supplies that which is missing from Kimmitt in view of Wang to render the independent claims obvious, this ground of rejection cannot be maintained..

Therefore, the rejection should be withdrawn.

### Secondary References

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to Applicants' disclosure than the primary references cited in the Office Action. Therefore, Applicants believe that a detailed discussion of the secondary references is not necessary for a full and complete response to this Office Action.

557602\_1

10/789,586

Page 9 of 9

**Conclusion**

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Eamon Wall at (732) 530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully submitted,

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557602\_1